Date	Time	Class/Set	Lesson No	No. in class	Room
Thursday, 31st October 2019	13:20 – 14:10	10X (Triple Chemistry)	4	32	T1

Your targets from weekly training meeting relevant to this lesson

N/A

Background of the class context of your teaching and learning plan and your expectations

Targeted Support: SEN (from SIMS): Manel – Hearing Impairment Chloe – Possible High Function ASD Madeline – Specific Learning Difficulty	Additional Adults: SJU – regular class teacher.

Relevant Curriculum Statements

Students should be able to:

- (HT Only) calculate the chemical quantities in titrations involving concentrations in mol/dm^3 and in g/dm^3.
- Req Prac: (HT only) determination of the concentration of one of the solutions in mol/dm^3 and g/dm^3 from the reacting volumes and the known concentration of the other solution.

Pre-supposed knowledge / Possible Concepts / Misconceptions / Alternative Ideas

I continued teaching this lesson last week, however, we only got through one exemplar calculation for a 1:1 molar ratio. We still need to go through a 2:1 ratio and converting units when the concentration is given or required in g dm-3. Students may struggle with using the molar ratio and either assume they always divide/multiply by a certain number, or multiply when they should divide etc. I have tried to scaffold this by showing examples of 1:1 and 2:1 molar ratios and having guided practice of these in the lesson. I also assume students can recall the chemical formula of hydrochloric, nitric and sulfuric acids – this was not the case in the first lesson so I will give them the formulas as necessary but aim to get them to be able to recall them for themselves in future. Additionally, I am assuming that students are still able to calculate M_r to use to convert between g dm^{-3} and mol dm^{-3} when given a formula triangle. To speed up the guided examples, I have made a template with the mini table constructed and the steps written out, so that students can focus on the explanation and calculation instead of getting everything written down. The slides will also be made available on Show My Homework (SMHW) after the lesson for students to review/catch-up on after the lesson.

Learning points:

1 *calculate the number of moles in a given volume of a solution of known volume.*

2 *calculate the number of moles needed for a neutralisation reaction using molar ratios.*

3 *calculate the concentration, in terms of moles and mass, of an unknown from its titration data.*

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Time	Teacher Activity What are you doing? Additional adults in room?	Pupil Activity What are the pupils doing? **Evidence of progress? Refer to Learning Points.**
(0:00 – 0:05) 13:20 – 13:25	Bringing students into the classroom, setting starter activity and starting the timer, taking register (or SJU will), organising resources. Going through the starter activity answer.	Students will write down title date etc. from screen into their books and then complete the starter activity in their books. The starter is to discuss in pairs what the 6 steps to our calculation method are.
(0:05 – 0:20) 13:25 – 13:40	Have the calculation templates given out, have one on the board to explain how to fill it out if necessary. Go through the 2 remaining guided examples.	Students will be listening and filling in the calculation steps on their template sheets. Students will also be questioned and asked to calculate values alongside and for what I am doing at the front.
(0:20 – 0:40) 13:40 – 14:00	Circulate around the room offering help and jumping onto the whiteboard to do a guided solution should students be stuck.	Students have a worksheet to get on with (printed questions, answers in exercise books). There are tiered questions to help them see their progression and what the difficult questions are. Questions in exams are typically worth 4 marks (1 min a mark = 25 mins – next activity can be pushed if need be but I believe as an able group, and with the repetitive nature of the method they can finish this quicker). I will be setting a countdown for this on screen to keep them on track.
(0:40 – 0:42) 14:00 – 14:02	Put answers on the board, can go through 1 or 2 if necessary if all struggling.	Self-assess in green pen, stick sheets into books. 2 min timer on the board to speed this along.
(0:42 – 0:50) 14:02 – 14:10	Writing information on the whiteboard, running through spreadsheet to get to the correct answer, make note of Achievement points to log onto SIMS	Calculation countdown – like the numbers of round of countdown but for titration calculations, we'll pick an acid, alkali, two volumes and a concentration and have a timer on the board/race. Achievement points for the winner/s.

Evidence of Pupil Progress

Students will learn how to tackle titration calculations – this will be measured by quick feedback (show of hands for /6) of self-assessment marks from their worksheet.

Resources needed: Interactive whiteboard for PowerPoint, whiteboard, whiteboard pens, worksheet photocopies, exam questions to hand back.
Health and Safety issues and Risk Assessment: Looking at IWB screen for an extended period of time.
Homework set: Expected to be completing Tassomai as usual.

Evaluation (after every lesson**)**
Strengths / Areas for Development
Evidence
Actions for future plans
Reflection (once per week**)….**